MONITOR DISPLAYS

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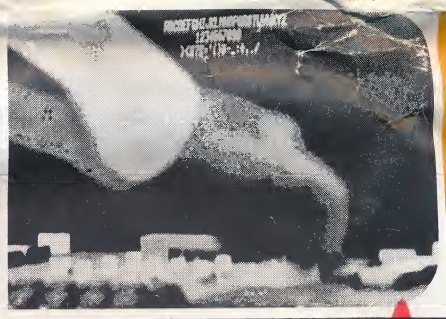
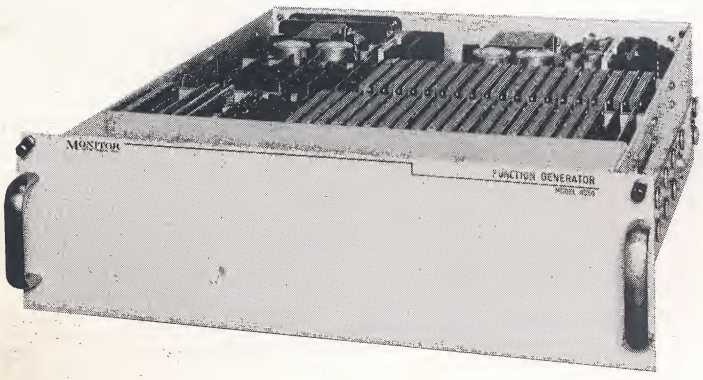
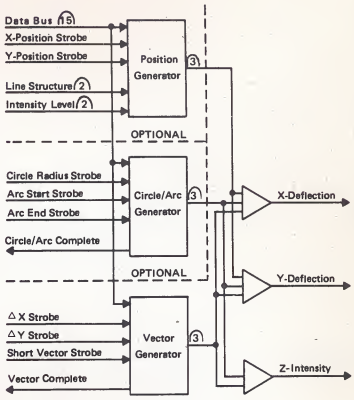


Data Sheet 8050

MODEL 8050 FUNCTION GENERATOR FOR GRAPHIC DISPLAY SYSTEMS



The MONITOR Model 8050 is a function generator for computer graphics applications. It generates vectors, circles, and arcs for a CRT display. The modular design permits the selection of a number of functions to meet the exact requirements of your graphics system.



DESIGN FEATURES

- Well Defined Interfaces
- Asynchronous operation—writing time is a function of the graphic element being drawn
- Constant intensity vectors
- Circle intensity compensation
- High resolution arcs
- 4 lines structures available
- Built-in expandability

FUNCTIONAL DESCRIPTION

Data from an external source is applied to the input of a position generator, circle/arc generator and a vector generator. The data will be accepted by the appropriate generator by the activation of 1 of 8 strobes. Upon completion of the graphic function, a circle/arc or vector complete signal is sent back to the external source. The three generators develop the deflection signals necessary to position the beam of a cathode-ray tube and to cause a vector, arc or circle to be drawn. Additional outputs from the vector and circle/arc generator are summed and applied to the intensity input of the CRT.

SPECIFICATIONS

All digital input and output signal levels and impedances are compatible with conventional TTL integrated-circuit logic. All strobe pulses and "complete" signals are nominally 500 nanoseconds wide.

Inputs

(a) Data Bus (Standard)

15 bit parallel word. Lines are high when true, Word contains the x and y position, circle radius, arc starting position, arc ending position, vector x and y projections, or both the x and y projection of a short vector. Routed into appropriate generator by 1 of 8 strobes.

(b) X Position Strobe (Option P)

Negative going pulse used to enter x position coordinate into D/A converter. Zero x coordinate is located at the left of the CRT.

(c) Y Position Strobe (Option P)

Negative going pulse used to enter y position coordinate into D/A converter. Zero y coordinate is located at the top of the CRT.

SPECIFICATIONS (cont.)

(d) **Circle Radius Strobe (Option C)**	Negative going pulse used to enter circle radius information into circle generator.
(e) **Arc Start Strobe (Option CA)**	Negative going pulse used to enter arc starting location into arc generator. Zero degree position of arc is defined along the minus x axis. Circle can be considered to be composed of 1024 arc segments.
(f) **Arc End Strobe (Option CA)**	Negative going pulse used to enter arc ending location into arc generator.
(g) **△x Strobe (Standard)**	Negative going pulse used to enter signed △ x data into vector generator. Minus △ x causes the vector to be drawn toward the lefthand edge of the CRT. Plus △ x causes the vector to be drawn toward the righthand edge of the CRT.
(h) **△y Strobe (Standard)**	Negative going pulse used to enter signed △ y data into the vector generator. Minus △ y causes the vector to be drawn toward the bottom of the CRT. Plus △ y causes the vector to be drawn toward the top of the CRT.
(i) **Short Vector Strobe (Standard)**	Negative going pulse used to enter both the signed △ x and signed △ y data into the vector generator. Short vector resolution is limited to ±6 bits (±64 raster elements).
(j) **Line Structure (Option PL)**	Two data lines used to define the line structure of any vector. Solid, dotted, dashed, or dot-dashed lines may be drawn.
(k) **Intensity Level (Option P)**	Two data lines used to define 1 of 4 intensity levels (including blank) at which graphic element will be drawn.

Outputs

(a) **Circle/Arc Complete**	Negative going pulse indicating that circle or arc has been drawn.
(b) **Vector Complete**	Negative going pulse indicating that vector has been drawn.
(c) **X-Deflection**	±3 volts into a 75 ohm load
(d) **Y-Deflection**	±3 volts into a 75 ohm load
(e) **Intensity**	Standard unit provides a TTL output level. One of four optional analog voltage levels may be selected.

Vector Generator Characteristics

(a) **Writing Rate**	5 microseconds plus 5 microseconds per inch.
(b) **Linearity**	±1% of full scale
(c) **Resolution**	10 bits plus sign for both the x and y components.
(d) **Delay**	Less than 100 nanoseconds delay between x or y and intensity output.
(e) **Intensity Rise & Fall Time**	Less than 50 nanoseconds.

8050 4-70 10M

Circle/Arc Generator Characteristics

(a) **Writing Rate**	All circles require 300 microseconds. Arcs require 300-400 microseconds depending on starting and ending coordinates. Intensity signal is unblanked for the last 75 microseconds of the total drawing time.
(b) **Linearity**	±1% of full scale.
(c) **Resolution**	10 bits each for radius, arc starting coordinate and arc ending coordinate.
(d) **Phase Shift**	Phase shift between the x and y deflection signals is less than 1 degree.
(e) **Intensity Compensation**	All circles larger than one inch in diameter have their intensity output signal level compensated as a function of the circle radius.
(f) **Direction**	Circle is drawn clockwise with its starting location positioned along the minus x axis.

Position Generator Characteristics

(a) **Positioning Linearity**	±0.2% of full scale
(b) **Resolution**	10 bits each in x and y

Power Requirements

(a) **Input Power**	115v ± 10%, 60 Hz ± 5%, single phase @ 1A (total for all options)

Mechanical Configuration

(a) **Size**	
Total for 8050 with circle and arc options	19" W x 5-7/32"H x 20-7/8"D
Total for 8050 and circle, arc, and position options.	19" W x 5-7/32"H x 26-1/2"D
(b) **Weight**	65 lbs. or 86 lbs. depending upon options.

Environment

(a) **Temperature**	50°F to 100°F
(b) **Relative Humidity**	to 95% without condensation. Other ranges available on special order.

Ordering

8050 is the designation for the basic model vector generator. These options are available:

- C — Circle Generator
- A — Arc Generator
- P — Position Generator
- L — Line Structure (Dash, Dot, Dash-Dot)

When ordering, add option codes to basic model number. For example, 8050CP for function generator with Vector, Circle and Position generators.

Monitor Displays reserves the right to change specifications without notice.

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